

REMARKS

Claims 1-14 and 16-20 are pending in the present application. Claims 1, 6, and 11 are in independent form.

I. Specification Amendments:

As requested by the Examiner, Applicants amend the specification to expressly set forth the specific equations recited in claims 14, 16, and 18.

II. Claim Objections:

As noted in paragraph 3 of the Office Action, the Examiner objects to several claims for reciting terms that are internally inconsistent, unclear, or grammatically incorrect. Without acquiescing to the correctness of the objections, Applicants amend the claims by implementing most of the Examiner's helpful suggestions.

However, Applicants respectfully disagree with the objection raised with respect to claim 14. Namely, the Examiner asserts that the plural term "components" should be deleted in favor of the singular term --component--. This is simply incorrect since claim 14 defines two components (i.e., "said I and Q components"). In an effort to further clarify the claimed subject matter, Applicants delete the term "each," which precedes the objectionable term.

Applicants respectfully submit that the incorporated amendments are believed to be editorial. They do not, however, narrow the scopes of the claims.

III. Allowable Subject Matter:

Applicants note with appreciation the indication that claims 11-14 and 16-20 are allowable.

IV. Claim Rejections under 35 U.S.C. §112(1st):

The Examiner rejects claims 1-10 under 35 U.S.C. §112(1st) as failing to comply with the enablement requirement. The basis for the rejection is the allegation that the scaling feature of the signal to the "full scale range," as

recited in claims 1, 3 and 6, is not clearly or adequately described by the specification. Applicants respectfully disagree.

The Examiner asserts that the claim language implies that the signal is always scaled to the “maximum input” of the digital-to-analog converter (“DAC”). This is simply not the case. The claim language at issue is straightforward. Consider claim 1, for example, which recites that the multiplier scales a digital representation of the signal to the “full scale range” of the DAC. The “full scale range” of the DAC and the “maximum input” of the DAC are both related to the size (or capacity) of the DAC. However, the two characteristics are not one in the same, as intimated by the remarks at paragraph 5 of the Office Action.

More specifically, the term “full scale range” merely refers to the range of input signal values that the DAC is capable of handling. The full scale range spans from a minimum input value to a “maximum input” value. For a given DAC, the “maximum input” is but only one end point of the full scale range.

Applicants agree with the Examiner’s position to the extent that the scaling feature is such that the peak value is represented by all x bits in their “on” state (i.e., the maximum value that can be input to the DAC).¹ However, this simply does not require less than peak values to be represented in the same fashion.

By way of example only, Applicants submit that the scaling feature may be considered (from a purely conceptual standpoint) as spreading the digital representation of the signal over the operational range of the DAC. Consider the scenario depicted in the attached Appendix. Here, assume that the DAC’s full scale range spans from 0 dB to 10 dB. Further assume that the peak input value before scaling is 4 dB. In this exemplary scenario, a scale factor of 2.5 or more may be employed to spread the signal to the DAC’s full scale range. Using a scale factor of 2.5 (for example), the peak value of 4 dB becomes the 10 dB maximum input of the DAC. Now consider a less than peak value (e.g., 2

¹ Spec., p. 9, second full paragraph.

dB). Using the same 2.5 scale factor, the 2 dB value would be scaled to a 5 dB input value of the DAC. This conceptual model demonstrates that the scaling feature of the present invention does not result in a digital gain being introduced so that the input bits of the DAC are "always on."

In short, Applicants respectfully submit that the basis for the raised rejection under §112(1st) is incorrect to the extent that it frustrates the plain meaning of the claim language. Namely, the terms "full scale range" (as claimed) and "maximum input" are not synonymous. With this in mind, Applicants respectfully submit that in view of the specification, one skilled in the art could practice the invention defined by claims 1, 3, and 6.

CONCLUSION

The issues in the case are considered to be resolved. Accordingly, Applicant again requests a Notice of Allowability.

If the Examiner has any questions concerning this application, the Examiner is requested to contact the undersigned at (703) 668-8000 in the Washington, D.C. area.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayments to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Very truly yours,

HARNESS, DICKEY & PIERCE, P.L.C.

By _____

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